

Commencing at Brunnerton at a level of 61ft. above the sea, the West Coast-Nelson line rises by easy stages to about 750ft. at the Inangahua watershed, the summit of the saddle being 150ft. higher. After this comes a fall to about 200ft. at the Inangahua Junction, and a rise to 2,380ft. at Tophouse, and finally a fall to 452ft. at Belgrove.

*Works.*—From Brunnerton to the Inangahua Landing, a distance of fifty-three miles, the country is remarkably favourable to railway-construction. With the exception of the river-bridges and the small tunnel at the Inangahua saddle above referred to, the works are exceptionally light. From the Landing to Junkers—ten miles—the ground is more broken; still, there is no serious difficulty: but from Junkers to the Maruia, a distance of fifteen miles, the works are exceptionally heavy. The Buller runs all the way in a narrow gorge; so the railway must be scarped out of the solid rock, carried in tunnels through spurs, or supported by retaining-walls, as best suits the configuration of the ground. This portion of the railway closely resembles the Taieri Gorge on the Otago Central, or the Manawatu on the Woodville-Palmerston line. The most important work is a tunnel, 33 chains long, through a spur opposite the Lyell.

From the Maruia right to the summit, near Tophouse—forty-seven miles—there are no difficulties to contend with, and thirty miles of the distance is very easy. Although this railway rises to within 150ft. of the highest altitude on the East and West Coast line, there is no tunnel at the summit, the ground does not admit of it, being more of a table-land than a saddle.

The last section—that from Tophouse to Belgrove—also contains very heavy works. Although the country is open and the slopes easy, there are a number of ridges and sharp spurs to cross at right angles, which make grading difficult. The heaviest work of any kind is a tunnel, 43 chains long, at the head of the Blue Glen; and there are three viaducts, from 80ft. to 110ft. high, and 18 chains total length.

So far as can be ascertained from the preliminary sections, the West Coast and Nelson Railway will have twenty-four tunnels, of the aggregate length of 3 miles 33 chains. Of these, however, only nine are more than 12 chains long.

In addition to smaller structures of the same kind, there are thirty river-bridges and viaducts—150 chains. The total length of railway to make from Brunnerton to Belgrove is 154 miles: this includes the 1 mile 30 chains at the Brunnerton end partly made, and common to both this and the East and West Coast lines; also, the 2½ miles formed at the Belgrove end.

*Cost.*—The estimated cost, made up, not from detailed measurements, but by comparison with other railways, is £1,330,000—equal to £8,640 per mile.

#### WESTPORT TO INANGAHUA JUNCTION.

A trial survey for this railway has been made on each side of the Buller; but the line on the north side is preferred. The surveys, particularly that on the north side, are very complete.

The line simply follows up the river-bank to a point about a mile above the Inangahua Junction; then crosses to join the West Coast and Nelson Railway.

The ruling gradient is 1 in 50, and the sharpest curve 7 chains; but this can easily be made 7½. For the first six miles from Westport the ground is level and the work light; but after that, all the way to the Junction, the ground and works are exactly as described for the portion of the West Coast-Nelson between Junkers and the Maruia. The river is all gorgy, and, as a consequence, the works are exceptionally heavy. In addition to a large amount of rock-cutting, there are six small tunnels, of the aggregate length of 54 chains, and 41 chains of bridging.

The length of the line is twenty-seven miles, and the estimated cost £335,000—equal to, say, £12,400 per mile.

#### TOPHOUSE TO BLENHEIM.

There has only been a reconnaissance survey of the line between Tophouse and Blenheim, but the country is all open and regular, so it is quite sufficient to give a fair idea of the kind of railway obtainable.

There will be some little difficulty in getting good gradients at the upper end of the line, near Tophouse, but nine-tenths of the distance is through remarkably easy country. There are only two river crossings worth mentioning, and the formation works generally will be very light, mainly surface forming.

The length of the line is 63 miles, and the estimated cost £375,000—equal to, say, £6,000 a mile.

#### PRESENT SETTLEMENT.

*Disposal of Lands.*—Map No. 2 shows the position of the various lands in the country affected by the proposed railways, and the following table gives their approximate areas:—

| —               |     |     |     | Leased. | Sold.     | Crown Lands. | Total.    |
|-----------------|-----|-----|-----|---------|-----------|--------------|-----------|
|                 |     |     |     | Acres.  | Acres.    | Acres.       | Acres.    |
| Canterbury      | ... | ... | ... | 246,800 | 16,200    | 298,280      | 561,280   |
| Westland        | ... | ... | ... | ...     | 59,300    | 1,012,060    | 1,071,360 |
| Western Nelson  | ... | ... | ... | ...     | 102,800   | 3,007,600    | 3,110,400 |
| Northern Nelson | ... | ... | ... | 102,300 | 497,900   | 313,080      | 913,280   |
| Marlborough     | ... | ... | ... | 296,000 | 384,600   | 413,580      | 1,094,180 |
| Total           | ... | ... | ... | 645,100 | 1,060,800 | 5,044,600    | 6,750,500 |